ISDH Radiologic Health Section

ISDH THERAPY ACCELERATOR

INITIAL COMMISSIONING SUMMARY

1. Facility Registration Number _____ 2. Physicist's Signature _____

3. Inspection Date _____ (code)

A. Machine Number	B. Machine Design (Use Codes)	C. Location	D. Manufacturer (Use Codes)	E. Date of Manufacturer	F. Model and Serial Numbers

RADIATION SAFETY SURVEY:

Qualified Physicist who performed shielding calculations: Code _____ Shielding Document Submitted: ☐ Yes ☐ No

Workload Assumptions: _____

Measurement Set-up: _____

_____

Radiation Safety Instrumentation / Calibration Date: _____

_____

Radiation Survey Results	mRem	mRem	mRem	mRem	
Location[1]	**0°**	**90°**	**180°**	**270°**	mRem / week
Console / Control Area					
Primary Barrier (90° Gantry Angle)					
Primary Barrier (270° Gantry Angle)					
Roof					
Door					
Secondary Barrier					
Secondary Barrier					
Secondary Barrier					
Secondary Barrier					
HVAC Ductwork					
Accessible Conduits					

[1] Submit a facility layout indicating where the measurements were taken.

DOSIMETRY SYSTEM AT FACILITY:

Cylindrical Chamber: Manufacturer/Model _____ ADCL Calibration Date: _____

Parallel Plate Chamber: Manufacturer/Model _____ N_{gas} Derivation Date: _____

Electrometer: Manufacturer/Model _____ ADCL Calibration Date: _____

Date of Aneroid Barometer Intercomparison: _____ Date Initial Calibration Completed: _____

Calibration Protocol: _____

QUALITY MANAGEMENT PROGRAM:

Submit the following departmental quality assurance documents:

--Treatment planning computer and dose calculational algorithm QA procedures

--Patient chart review policy and procedures

--Weekly output constancy check policy and procedure

--Monthly output spot check procedure

FACILITY REQUIREMENTS:

Warning Light at Entrance to Accelerator Room Operational	Sat ☐	Unsat ☐	

ACCELERATOR REQUIREMENTS:

Absorbed Dose due to Leakage Radiation in the Patient Plane:	Sat ☐	Unsat ☐	
Transmission Through Collimators:	Sat ☐	Unsat ☐	
Removable Wedges Clearly Identified:	Sat ☐	Unsat ☐	
X-ray Contamination of Electrons Beams:	Sat ☐	Unsat ☐	Not Applicable ☐
Absorbed Dose at the Surface:	Sat ☐	Unsat ☐	
Dose Monitoring System:			
Incorporated into two independent dose monitoring systems	Sat ☐	Unsat ☐	
Monitor units displayed in the event of a power failure	Sat ☐	Unsat ☐	
Asymmetry of beam monitored and interlocked	Sat ☐	Unsat ☐	
Secondary dose monitoring system able to terminate irradiation	Sat ☐	Unsat ☐	
Timer terminates irradiation if dose monitoring systems fails	Sat ☐	Unsat ☐	
Selection of Radiation Mode	Sat ☐	Unsat ☐	Not Applicable ☐
Selection of Energy	Sat ☐	Unsat ☐	Not Applicable ☐
Selection of Fixed or Rotational Mode	Sat ☐	Unsat ☐	Not Applicable ☐

Mechanical Parameters		Tolerance[2]
Gantry Rotation Isocenter	Sat ☐ Unsat ☐	
Collimator Rotation Isocenter	Sat ☐ Unsat ☐	
Table (Couch) Rotation Isocenter	Sat ☐ Unsat ☐	
Field Size Readouts	Sat ☐ Unsat ☐	
Gantry Angle Readouts	Sat ☐ Unsat ☐	
Collimator Angle Indicator	Sat ☐ Unsat ☐	
ODI Accuracy & Linearity	Sat ☐ Unsat ☐	
Light/Radiation Field Congruency	Sat ☐ Unsat ☐	
Laser Alignment System Accuracy	Sat ☐ Unsat ☐	

Emergency Off Switches	Operational: Yes ☐ No ☐
Door Interlock	Operational: Yes ☐ No ☐
Dosimetry Interlocks[3]	Operational: Yes ☐ No ☐
Safety Interlocks[4]	Operational: Yes ☐ No ☐
Audio Communications System	Operational: Yes ☐ No ☐
Visual Monitor System	Operational: Yes ☐ No ☐

Photon Beam Parameters				Tolerance[2]
Nominal Energy (MV)				----------
Ionization Ratio				----------
Flatness	Sat ☐ Unsat ☐	Sat ☐ Unsat ☐	Sat ☐ Unsat ☐	
Symmetry	Sat ☐ Unsat ☐	Sat ☐ Unsat ☐	Sat ☐ Unsat ☐	
Field Size Factors	Sat ☐ Unsat ☐	Sat ☐ Unsat ☐	Sat ☐ Unsat ☐	
PDD / TPR Values	Sat ☐ Unsat ☐	Sat ☐ Unsat ☐	Sat ☐ Unsat ☐	
Output Calibration	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Performed
Output / MU Reproducibility	Sat ☐ Unsat ☐	Sat ☐ Unsat ☐	Sat ☐ Unsat ☐	
Monitor Chamber Linearity	Sat ☐ Unsat ☐	Sat ☐ Unsat ☐	Sat ☐ Unsat ☐	
Wedge / Compensator Transmission Factors	Sat ☐ Unsat ☐	Sat ☐ Unsat ☐	Sat ☐ Unsat ☐	
Tray / Custom Block Transmission Factors	Sat ☐ Unsat ☐	Sat ☐ Unsat ☐	Sat ☐ Unsat ☐	
Open Field Isodose Lines (central axis)	Sat ☐ Unsat ☐	Sat ☐ Unsat ☐	Sat ☐ Unsat ☐	
Wedge Isodose Lines (central axis)	Sat ☐ Unsat ☐	Sat ☐ Unsat ☐	Sat ☐ Unsat ☐	
Constancy Check Device Calibration	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Performed

[2]The qualified radiation oncology physicist shall specify tolerance values based upon accelerator manufacture specifications and the most recent published standards. Corrective action is required for measured data that exceeds the stated tolerance.
[3]Energy (bending magnet current), flatness, symmetry, temperature and conpensation, et cetera.
[4]Target slide or scattering foil, dose chamber slide, dose rate, et cetera.

Electron Beam Parameters				**Tolerance**[2]
Nominal Energy (MeV)				-------
Mean Incident Energy				-------
Flatness: (Cone Size ______)	Sat ☐ Unsat ☐	Sat ☐ Unsat ☐	Sat ☐ Unsat ☐	
Symmetry	Sat ☐ Unsat ☐	Sat ☐ Unsat ☐	Sat ☐ Unsat ☐	
Output Calibration	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Performed
Output / MU Reproducibility	Sat ☐ Unsat ☐	Sat ☐ Unsat ☐	Sat ☐ Unsat ☐	
Constancy Check Device Calibration	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Performed

Electron Beam Parameters				**Tolerance**[2]
Nominal Energy (MeV)				-------
Mean Incident Energy				-------
Flatness: (Cone Size ______)	Sat ☐ Unsat ☐	Sat ☐ Unsat ☐	Sat ☐ Unsat ☐	
Symmetry	Sat ☐ Unsat ☐	Sat ☐ Unsat ☐	Sat ☐ Unsat ☐	
Output Calibration	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Performed
Output / MU Reproducibility	Sat ☐ Unsat ☐	Sat ☐ Unsat ☐	Sat ☐ Unsat ☐	
Constancy Check Device Calibration	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Performed

Electron Beam Parameters				**Tolerance**[2]
Nominal Energy (MeV)				-------
Mean Incident Energy				-------
Flatness: (Cone Size ______)	Sat ☐ Unsat ☐	Sat ☐ Unsat ☐	Sat ☐ Unsat ☐	
Symmetry	Sat ☐ Unsat ☐	Sat ☐ Unsat ☐	Sat ☐ Unsat ☐	
Output Calibration	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Performed
Output / MU Reproducibility	Sat ☐ Unsat ☐	Sat ☐ Unsat ☐	Sat ☐ Unsat ☐	
Constancy Check Device Calibration	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Performed